1/2 022 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--HYDROGEN BONDS AND INFRARED SPECTRA OF H COMPLEXES -U-

AUTHOR-(03)-ODINOKOV, S.E., DZIZENKO, A.K., MASHKOVSKIY, A.A.

COUNTRY OF INFO--USSR

SOURCE--SPECTROSC. LETT. 1970, 3(1), 1-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROGEN BONDING, COMPLEX COMPOUND, BENZENE DERIVATIVE, HYDROXYL RADICAL, PYRIDINE COMPLEX, DIMERIZATION, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1989 STEP NO--US/0000/70/003/001/0001/0006

CIRC ACCESSION NO--AP0112953

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--090CT70

CIRC ACCESSION NO--AP0112953

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE H BOND ENERGY OF A SPECIES CONSISTING OF BZOH H BONDED WITH PYRIDINE, WHICH WAS FORMED BY REACTING DIMERIC BZOH WITH PYRIDINE IN CCL SUB4, WAS ESTD. BY USING THE REACTION EQUIL. CONST. THE EQUIL. CONST. WAS DETD. BY IR SPECTROSCOPY, BY USING THE BANDS AT 1900 AND 1420 CM PRIME NEGATIVE1 TO DET. THE CONCNS. OF DIMERIC BZOH AND OF THE BZOH PYRIDINE COMPLEX, RESP. THE ENERGY OF THE H BOND BETWEEN BZOH AND PYRIDINE WAS DETD. AS 12.55 KCAL PER MOLE, AS COMPARED WITH A VALUE OF 12.77 KCAL-MOLE CALCD. IN ACCORDANCE WITH THE INTENSITY RULE OF A. B. JOHANSEN (1965). FACILITY: .INST. BIOL. ACTIVE SUBST., VLADIVOSTOK, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--CHANGES IN THE POROUS STRUCTURE AND GAS PERMEABILITY OF POROUS GLASS IN RELATION TO HEAT TREATMENT CONDITIONS -U-

AUTHOR-(03)-MASHKOVSKIY, I.K., BELOTSERKOVSKIY, G.M., PLACHENOV, T.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(1) 87-92

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POROSITY, GLASS STRUCTURE, PERMEABILITY MEASUREMENT, PLATE GLASS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0335 STEP NO--UR/0080/70/043/001/0087/0092

CIRC ACCESSION NO--AP0103990

UNCLASSIFIED

2/2. 013 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103990

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS POSSIBLE TO CHANGE THE POROUS STRUCTURE OF GLASS PLATE AND ITS GAS PERMEABILITY OVER VERY WIDE LIMITS BY VARYING THE HEAT TREATING TEMP. AND TREATMENT DURATION; E.G. HEAT TREATMENT AT 550 TO 680DEGREES FOR 40 MIN INCREASES THE GAS PERMEABILITY BY 7 FOLD.

UNCLASSIFIED

USSR UDC 615.22:547.834.4

MIKHLINA, YE. YE., ZAYTSEVA, K. A., VOROB'YEVA, V. YA., MASHKOVSKIY, M. D., and YAKHONTOV, L. N., All Union Scientific Chemical-Pharmaceutical Research Institute Imeni S. Ordzhonikidze, Moscow

"Synthesis and Pharmacological Study of the Derivatives of 3-Hydroxy- and 3-Aminoquinuclidines"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 8, Aug 73, pp 20-24

Abstract: A series of substituted quinuclidines was synthesized. To obtain 3-(2'hydroxybenzoyloxy)quinuclidine and related ethers, the 3-hydroxyquinuclidine was reacted with benzoic acid chlorides in pyridine at 20° or 100°. 3-Acylaminoquinuclidines were synthesized by reacting 3-aminoquinuclidine with respective acid chlorides. Two methods were used to prepare 3-alkyl- and 3-arylaminoquinuclidines: reduction of the 3-acylaminoquinuclidine with $LiAlH_4$, and reductive alkylation of 3-aminoquinuclidines with various carbonyl compounds, or of the respective amines with 3-ketoquinuclidine. The pharmacological studies were carried out using 3-benzoyloxyquinuclidine hydrochloride as the standard.
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MIKHLINA, YE. YE., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 8, Aug 73, pp 20-24

Only the ethers containing OH, CH_3 or Cl in the phenyl ring approached the activity of the standard compound. The rest of the derivatives had a diminished pharmacological effect or lacked it altogether.

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USSR

UDC 615.212:547.834.47.0121

NIKITSKAYA, YE. S., ARUTYUNYAN, G. S., SHVARTS, G. YA., MASHKOVSKIY, M. D., and YAKHONTOV, L. N., All Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Synthesis and Pharmacological Study of Substituted 2,2,6,6-Tetramethyl-4--aminopiperidyl-4-carboxamides"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 7m No 9, Sep 73, pp 16-19

Abstract: Derivatives of 2,2,6,6-tetramethyl-4-aminopiperidyl-4-carboxamide (I) -- analogues of the pyrithramide -- were synthesized in search for new analgesic agents. The reaction sequence was based on triacetoneamine being converted through the triacetoneaminecyanohydrine to 2,2,6,6-tetramethyl-4--(N-substituted)amino-4-cyanopiperidines which could be converted with 90% sulfuric acid at 100° to (I). Further alkylation of these carboxamides was very difficult. Pharmacological studies carried out on these products showed that steric hindrance around the cyclic nitrogen atom with methyl groups did not improve the analgesic or other pharmacological properties of the parent agents.

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USSR

UDC 615.214.32.015.45:612.822.3

MASHKOVSKIY, M. D., and ROSHCHINA, L. F., Laboratory of Pharmacology at the All Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Action of Azaphen on the Bioelectric Activity of the Brain"

Moscow, Farmakologiya i Toksikologiya, Vol 34, No 2, Mar-Apr 71, pp 144-148

Abstract: Azaphen -- 2-(4-methylpiperazinyl-1)-10-methyl-3,4-diazaphenoxazine -- resembles closely imipramine in a number of pharmacological properties. It displays antidepressive activity. Its effect on the bioelectric activity of the brain was investigated on cats and rabbits. The drug stimulated spontaneous bioelectric activity of the cortex, hipponcampus and reticular formation of the mesencephalon, lowered the thresholds of the activation reaction to a nociceptive irritation and electric stimulation of the reticular mesencephalic formation. Azaphen brought down the threshold of convulsive activity of the hippocampus and lengthened the duration of the after effect trace discharges. It potentiated the activating effect of amphetamine on the EEG; phenamine shows no effect on EEG in doses 0.5-1 mg/-kg; after pretreatment with azaphen (1-5 mg/kg) it causes desynchronization of the bioelectric activity.

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UNCLASSIFIED PROCESSING DATE--11DEC70

1/2 015

TITLE--SYNTHESIS, PHARMACOLOGICAL PROPERTIES, AND EFFECT OF SOME SYDNONE IMINES ON MONOAMINE OXIDASE ACTIVITY -U-

AUTHOR-(05)-YASHUNSKIY, V.G., MASHKOVSKIY, M.D., GORKIN, V.Z., KOLOSOV, L.L., ALTSHULER, R.A.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(3), 297-302

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CENTRAL NERVOUS SYSTEM STIMULANT, CHEMICAL SYNTHESIS, DRUG EFFECT, OXIDASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD7C/005C01/F10 STEP NO--UR/0390/70/033/003/0297/0302

CIRC ACCESSION NO--AP0130566
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--11DEC70

2/2 015

CIRC ACCESSION NO--AP0139586

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NO. OF 3,PHENYLALKYL DERIVS. OF SYDNONE IMINE, WHEN GIVEN TO MICE, STIMULATED THE CENTRAL NERVOUS SYSTEM AND ACTED AS PERIPHERAL ADRENOMIMETICS. THEY ALSO INHIBITED MONOAMINE OXIDASE IN VITRO. FACILITY: VSES. NAUCH.-ISSLED. KHIM.-FARM. INST. IM. ORDZHONIKIDZE, MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--ANTIARRHYTHMIC ACTIVITY OF OXYLIDINE -U-

AUTHOR-(02)-ZAYTSEVA, K.A., MASHKOVSKIY, M.D.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(3), 305-9

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RABBIT, CAT, CALCIUM CHLORIDE, RAT, DRUG EFFECT, ALKALOID, ARRHYTHMIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/609003/E04 STEP NO--UR/0390/70/033/003/0305/0309

CIRC ACCESSION NO--AP0139555

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 022

CIRC ACCESSION NO--AP0139555

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OXYLIDINE AT 3 TIMES LO PRIME NEGATIVE6 M INCREASED THE REFRACTORY PERIOD OF ISOLATED RABBIT AURICLES BY 25PERCENT, AND WHEN GIVEN I.V. TO CATS AT 1-10 MG-KG IT DECREASED OR SUPPRESSED ARRHYTHMIA CAUSED BY ELEC. SHOCK OR ADMINISTRATION OF CACL SUB2. AT 10-15 MG-KG I.M. OR 50 MG-KG I.P. IT HAD A SIMILAR EFFECT ON RAT HEART ARRHYTHMIA CAUSED BY ADMINISTRATION OF ACONITINE. DOSES OF 200-250 MG-KG GIVEN ORALLY TO THE RATS PREVENTED ARRHYTHMIA UPON SUBSEQUENT ADMINISTRATION OF ACONITINE. FACILITY: LAB. FARMAKOL., VSES. NAUCH.-ISSLED. KHIM.-FARM. INST. IM. ORDZHONIKIDZE, MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

1/2 024

TITLE--MODERN PRINCIPLES OF DRUG RESEARCH -U-

AUTHOR--MASHKOVSKIY, M.D.

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 132-44

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--METABOLISM, DRUG DOSAGE RESPONSE, DRUG PRODUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3009/0123 STEP NO--UR/0063/70/015/002/0132/0144

CIRC ACCESSION NO--AP0138988

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 024

CIRC ACCESSION NO--AP0138988

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW OF GENERAL GUIDELINES USED IN SEARCH FOR NEW MEDICINALS INCLUDING SYNTHETIC ROUTES TO MODIFIED SUBSTANCES AND A BRIEF ACCOUNT OF METABOLISM OF SOME SELECTED DRUGS.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ADVANCES AND PROSPECTS FOR THE DEVELOPMENT OF SOVIET PHARMACOLOGY -U-

AUTHOR--MASHKOVSKIY, M.D.

COUNTRY OF INFO--USSR

SOURCE--KHIM. FARM. ZH. 1970, 4(4), 19-23

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PHARMACOLOGY, DRUG

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0254 STEP NO--UR/0450/70/004/004/0019/0023

CIRC ACCESSION NO--AP0120944

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120944

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HISTORICAL NOTES AND NAMES OF DRUGS DEVELOPED AND USED IN SOVIET MEDICINE ARE PRESENTED.

FACILITY: VSES. NAUCH. ISSLED. KHIM. FARM. INST. IM. ORDZHONIKIDZE, MOSCOW, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--090CT70
TITLE--CONCERNING THE ADRENERGICAL MECHANISMS OF ACTION IN ANTIDEPRESSIVE DRUGS -U-
AUTHOR--MASHKOVSKIY, M.D.

M

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970, VOL 70, NR 5, PP 750-759
DATE PUBLISHED----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TRANQUILIZER, CENTRAL NERVOUS SYSTEM, PSYCHOPHARMACOLOGY, NERVOUS SYSTEM DRUG, ADRENERGIC DRUG

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1128 STEP NO--UR/0246/70/070/005/0750/0759

CIRC ACCESSION NO--AP0115147
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--090CT70

2/2 029

CIRC ACCESSION NO--AP0115147

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR GIVES CONCISE INFORMATION ON THE INFLUENCE OF PSYCHOTROPIC PREPARATIONS ON THE ADRENERGICAL PROCESSES IN THE CNS. THE SIGNIFICANCE OF THE ADRENERGICAL PROCESSES IN THE PATHOGENESIS OF DEPRESSION AND THE MECHANISM OF ACTION OF CONTEMPORARY ANTIDEPRESSIVE DRUGS IS STRESSED. METHODS OF PHARMACOLOGICAL STUDIES, USED IN THE SEARCH OF NEW ANTIDEPRESSIVE DRUGS ARE CONSIDERED. FACILITY: VSESOYUZNYY N I KHIMIKO FARMATSEVTICHESKIY INSTITUT IM. S. ORDZHONIKIDZE, MOSCOW.

UNCLASSIFIED

USSR UDC: 615.7

MASHKOVSKIY, M.D., Corresponding Member, Academy of Medical Sciences USSR

"Present-Day Principles in the Search of Drugs"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D.I. Mendeleyeva, Vol 15, No 2, 1970, pp 132-144

Abstract: Of the 4,000 drugs available for use, more than 95% have appeared within the last 30-40 years. A hundred thousand more were made - but not released. This is the result of present-day research which, uses laboratory procedures to test desirable and undesirable effects. Animals, tissues, sera, drugs and their metabolites, are tested biochemically, pharmacologically and clinically, giving rise to new screening methods, new synthesis, and new products. Chemists pick up the new product, alter the position of a component part, and another product appears. Sulfa drugs, antibiotics, steroids, etc., all develop in this manner. Tests in vitro and in vivo, and clinical observations of effects decide the value of a new drug. The motivating principle is the production of the best drug with the least toxicity or unpredictability; this entails the study of metabolites and their interaction within the body.

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USSR UDC 615.214.3

KHOLODOV, L. Ye., TASHUNSKIY, AL'TSHULER, R. A., MASHKOVSKIY, M. D., ROSHCHINA, L. F., SHERSHNEVA, S. I., LEYBEL'MAN, F. Ya., VOLZHINA, O. N., GORODETSKIY, L. Sh., and PETROVA, N. A., All-Union Chemical and Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Sydnocarb, a New Central Nervous System Stimulant"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, No 1, 1973, pp 50-52

Abstract: The recently developed heterocyclic compound sydnocarb -- N-phenylcarbamoyl-3-(β-phenylisopropyl) sydnonomine, $C_{18}H_{18}N_4O_2$ -- produced marked motor excitation in mice, rats, dogs, and cats, increased the frequency and decreased the amplitude of electrical potentials, shortened the latent period of conditioned avoidance reflexes, and reduced the duration of the somnifacient action of hexobarbital. It did not depress monoamine oxidase activity, affect arterial pressure, or cause morphological changes in the viscera or peripheral blood. Administered to persons with various neurological and mental diseases (average dose 10 to 25 mg) characterized by asthenic, adynamic, and apathic disorders, sydnocarb had a pronounced stimulatory effect (exceeding that of amphetamine) without inducing euphoria or motor excitement, tachycardia, elevated blood pressure, or other peripheral changes. No signs of physical or

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KHOLODOV, L. Ye., Khimiko-Farmatsevticheskiy Zhurnal, No 1, 1973, pp 50-52

mental dependence were observed even in patients that received the drug more than 2 years. Sydnocarb has been authorized by the USSR Ministry of Health for use as a psychotropic agent.

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USSR

UDC 615.217.34

MASHKOVSKIY, M. D., and SHVARTS, G. YA., Laboratory of Pharmacology, All-Union Scientific Research Chemicopharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Cholinolytic Activity of Oxymethyl Analogues of Atropine and Tropacin"

Moscow, Farmakologiya i Toksikologiya, Vol 35, No 2, Mar/Apr 72, pp 155-159

Abstract: The anticholinergic activity of oxymethylatropine (OMA) and oxymethyltropacin (OMT) was investigated in comparison with that of atropine and tropacin. Differences were observed, depending on the organs tested. Thus, OMA is less effective than atropine in inhibiting pilocarpine-induced hypersalivation (by a factor of 20), in reducing acetylcholine-induced spasm of rabbit intestine (by a factor of 10), and in causing mydriasis in mice (by a factor of 10). However, OMA is just as effective as atropine in inhibiting gastric secretion in rats and acetylcholine-induced hypertension in cats and contraction of frog abdominal rectus. The toxicity of both compounds is the same. Similar differences exist between OMT and tropacin. The findings indicate that alteration of the acidic portion of the molecule of tropinic esters can result in compounds with selective action on cholinergic systems.

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USSR

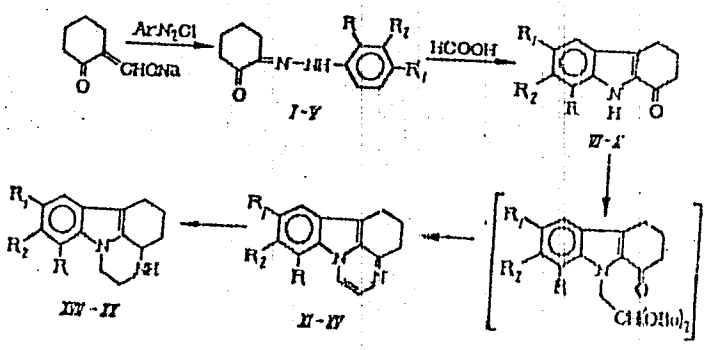
UDC 615.31:[547.861.3+547.751].01].1

SHVEDOV, V. I., ALTUKHOVA, L. B., ANDREYEVA, N. I., MASHKOVSKIY, M. D., and GRINEV, A. N., All-Union Scientific Research Pharmacochemical Institute imeni S. Ordzhonikidze, Moscow

"Pyrazino- and Piperazino[1,2-a]indole Derivatives"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 10, Oct 72, pp 14-17

Abstract: The authors synthesized some new derivatives of pyrazino[1,2-a]indole according to the scheme:



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SHVEDOV, V. I., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 10, Oct 72, pp 14-17

and analogously from 2,3-dihydro-4-keto-8-methylthiopyrano [3,2-b] indole obtained 2,3-dihydro-10-methylpyrazino 1,2-a thiopyrano [3,2-b] indole, isolated as the hydrochloride. The reduction of XII, XIII, XV with sodium in boiling ethanol gives derivatives if piperazino [1,2-a] indole. It was also found that piperazino [1,2-a] indoles can be obtained by the reduction cyclization of N-acetamide derivatives of 1-keto-1,2,3,4-tetrahydrocarbazole with sodium in boiling ethanol.

Pharmacological investigations showed that derivatives of 1,10-trimethylene-piperazino [1,2-a] indole possess properties characteristic of substances with antidepressive activity (imizin etc.) and compounds with a neuroleptic effect (aminazin etc.). An affinity with antidepressants of the inipramine type is most characteristic of the studied derivatives. The corresponding derivatives of pyrazino [1,2-a] indole have a lower activity than those of piperazino [1,2-a] indole. The studied compounds are of comparatively low toxicity.
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USSR

UDC 615.214:547.759

MASHKOVSKIY, M. O., GRINEV, A. N., ANDREYEVA, N. I., SHVEDOV, V. I., and ALTUKHOVA, L. B., Laboratory of Pharmacology and Laboratory of Synthesis, All-Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Investigation of the Psychotropic Activity of 1,10-Trimethylenepyrazino [1,2-a]indole"

Moscow, Farmakologiya i Toksikologiya, Vol 34, No 4, Jul-Aug 71, pp 387-391

Abstract: Five novel derivatives of 1,10-trimethylenepiperazino[1,2-a]indole (I) and two derived from 1,10-trimethylenepyrazino[1,2-a]indole (II) were studied in respect to their psychotropic activity (reaction to the effect of phenamine and reserpine on mice and rats, cataleptic activity of these materials on rats, their effect on body temperature and overall state of mice). The derivatives of (I) were found to be more active, especially those without any substituents in the ring, those with a methoxy group in position 8 and methyl group in 2 and 8 position of the heterocycle. By their activity these substances resemble the antidepressants of the tricyclic structural type such as imizines. Derivatives of (II) exhibited a

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201930009-5"

USSR

MASHKOVSKIY, M. O., et al., Farmakologiya i Toksikologiya, Vol 34, No 4, Jul-Aug 71, pp 387-391

definitely lower activity. Transition from a tertiary amine derivative of (I) to a quaternary amine lowered its activity.

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Pharmacology and Toxicology

USSR UDC 615.31:547.751].012.1

GLUXHKOV, R. G., TRUBITSYNA, T. K., MAGIDSON, O. Yu., and MASHKOVSKIY, N. D., All Union Scientific Research Institute of Pharmaceutical Chemistry imeni S. Ordzhonikidze

"Investigation of Lactams. XX. Synthesis and Pharmaceutical Activity of Azepino-[3,4-b]indole Derivatives"

Moscow, Khimiko-farmatsevticheskiy zhurnal, Vol 4, No 10, Oct 70, pp 9-13

Abstract: Indole analogs of α,β-pentamethylenetetrazole and ε-methylcaprolactim, and a number of 1,2- and 10- substituted azepino[3,4-b]indoles were synthesized from unsubstituted and 7-methoxy substituted 1-oxo-1H,2,3,4,5-tetrahydroazepino[3,4-b]-indoles. It was found that the principal pharmaceutical property of the synthesized azepino[3,4-b]indole derivatives is their tranquilizing effect on the central nervous system accompanied by muscular relaxation and hypothermia. The most active compounds in this respect were 1-alkoxy-3H- and 4,5-dihydroazepino[3,4-b]indoles, and 1-ethoxy-10-methyl-3H,4,5-dihydroazepino[3,4-b]indole. These compounds produce a cataleptic state in rats and mice, and a further increase in dosage has a sleep-inducing effect.

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UNCLASSIFIED PROCESSING DATE--17JUL7

TITLE--ACAPTATICN TO THE CCNCITICNS OF HIGHLAND AREAS IN THE PAMIRS -U-

AUTHOR--MASHKCVSKIY, V.G., BCBCKHCCZHAYEV, M.KH.

CCUNTRY CF INFC--USSR

SOURCE--VCENNO-MEDITSINSKII ZHURNAL, JAN. 1970, P. 45-48

DATE PUBLISHED-------70

SUBJECT AREAS--BICLCGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ALTITUCE ADAPTATION, CARDICVASCULAR SYSTEM, BICELECTRIC PHENCMENCN, CARCICGRAPHY

CONTROL MARKING--NC RESTRICTICNS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1979/0616 STEP NC--UR/0177/70/000/000/0045/0048

CIRC ACCESSICN NC--AP0047123
UNCLASSIFIED

Acc. Nr: AP0047123 Abstracting Service: INTERNAT. AEROSPACE ABST. Ref. Code: 5-30UR0177

A70-25179 # Adaptation to the conditions of highland areas in the Pamirs (Adaptatsiia k usloviiam vysokogornykh rionov Pamira). V. G. Mashkovskii and M. Kh. Bobokhodzhaev. *Voenno-Meditsinskii Zhurnal*, Jan. 1970, p. 45-48. In Russian.

Study of the function of the cardiovascular system of a group of 250 healthy young men exposed in the Pamirs to altitudes of 2200, 3600 and 4200 m for periods from 2 days to 3 years. The electrical and mechanical cardiac activity manifestations and their interdependence are investigated in the subjects by simultaneous EKG and phono-KG recordings under various hypoxic conditions. The development of various subjective and objective--mostly temporary--disorders, such as dryness in the mouth, bad sleep, nausea, shooting pain in the heart, and dyspnea, is noted during the adaptation period. Also noted are overextended systoles and diastoles and a sinusoidal bradycardia during the first month of exposure.

V.Z.

REEL/FRAME
19790616

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--PHOSPHINE OXIDES CONTAINING A 1,3,DIENT GROUPING AT THE PHOSPHORUS ATOM -U-
AUTHOR-(04)-MASHLYAKOVSKIY, L.N., IONIN, B.I., OKHRIMENKO, I.S., PETROV, A.A.
COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40 (4), 804-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOSPHORUS OXIDE, DIENE, ORGANOMAGNESIUM COMPOUND, CATALYTIC HYDROGENATION, BUTACIENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1371 STEP NO--UR/0079/70/040/004/0804/0808

CIRC ACCESSION NO--AP0128771
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128771

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO PHMGBR FROM 3 G MG PREPD. IN ET SUB2 O WAS ADDED WITH COOLING 10.8 G MECH:CHCH:CHP(O)CL SUB2, AND THE MIXT. HEATED 3 HR, THEN REFLUXED IN (SHOWN ON MICROFICHE). THE CRUDE REACTION PRODUCT OF II AND PHMGBR WAS TREATED WITH ALC. KOH 20 HR AT ROOM TEMP. AND 0.5 HR AT 50DEGREES TO YIELD 22PERCENT CH SUB2:CHCH:CHP(O)PH SUB2, M. 105-7DEGREES. THE PRODUCTS OF HYDROGENATION WERE MIXED CIS-TRANS FORMS IN CASE OF DERIVS. OF 2,METHYL,1,3,BUTADIENE, BUT IA WAS THE TRANS ISOMER, AS WAS ITS PRECURSOR DIENE DERIV.

FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

Organophosphorus Compounds

USSR

UDC 661.718.1

MASHLYAKOVSKIY, L. N. and OKHRIMENKO, I. S., Leningrad, Technological Institute imeni Lensovet, Leningrad, Ministry of Higher and Secondary Specialized Education RSFSR

"Phosphorus-Containing Oligoesters with 1,3-Diene Groupings in the Side Chain"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 43, No 1, Jan 70, pp 107-112

Abstract: P-containing oligoesters $-P(=O)(R)O(CH_2)_2(CH_2)_2O-$ with 1,3-diene groups R attached to P were synthesized by the polycondensation of diethyleneglycol in dichloroethane at 50-70° with the dichlorides $Cl_2P(=O)R$ of penta-2,3-diene-, 2-methyl-1,3-butadiene-, and buta-1,3-dienephosphonic acid. The three products obtained were viscous, transparent liquids. They polymerized to solid polymers on heating in the presence of peroxide or hydroperoxide initiators and on being applied in the form of an EtOH solution, formed three-dimensional polymer films that adhered well to metal and glass. By using benzoyl peroxide + dimethylaniline, polymerization could be carried out at room temperature. The capacity for polymerization depended on the structure of R; it decreased in the order $CH_2=CHCH=CH- > CH_2$

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USSR

MASHLYAKOVSKIY, L. N., et al., Zhurnal Prikladnoy Khimii, Vol 43, No 1, Jan 70, pp 107-112

=CHC(Me)=CH- > MeCH=CHCH=CH-. A test on the polymer with R = MeCH=CHCH=CH- showed that it was non-inflammable.

2/2

USSR

UDC: 547.341

MASHLYAKOVSKIY, L.N., IONIN, B.I., OKHRIMENKO, I.S., and PETROV, A.A., Leningrad Technological Institute imeni Lensovet, Leningrad, Ministry of Higher and Secondary Specialized Education RSFSR

"Phosphine Oxides Containing 1,3-Diené Grouping at Phosphorus Atom"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 804-808

Abstract: A previous article by the authors reported the synthesis of individual 1,3-dienephosphine oxides by the interaction of unsaturated phosphonyl dichlorides with Grignard reagents. The present article gives more detailed information on the synthesis and structure of these compounds. The interaction of 1,3-dienephosphonic and chlorobutenephosphonic acid dichlorides with Grignard reagents with subsequent dehydrochlorination by alcoholic alkali gives previously undescribed tertiary phosphine oxides containing a 1,3-diene grouping at the phosphorus atom. The structure of the resultant phosphine oxides is confirmed by the results of catalytic hydrogenation.

The formation of compounds with the cis and trans configura-

USSR

MASHLYAKOVSKIY, L. N., et al., Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 804-808

tion with respect to the double bond in the α,β-position to phosphorus is explained on the basis of the idea of the bimolecular mechanism of trans-elimination and the influence of steric interactions of substituents at the β-carbon atom with the phosphorus-containing grouping.

2/2

USSR UDC 547.341

MASHLYAKOVSKIY, L. N., ZAGUDAYEVA, T. A., IONIN, B. I., OKHRIMENKO, I. S., and PETROV, A. A., Leningrad Technological Institute Imeni Lensovet

"Synthesis of Derivatives of Thionephosphonic Acids With Conjugated Dienes"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 12, Dec 72, pp 2648-2656

Abstract: Gradual replacement of the halogen atoms in $PSCl_2$ by alkoxyl radicals produced new ester-acid chlorides and diesters of 2-methylbutadiene-1,3-thionephosphonic acid and bis-1,3-dienethionephosphonates. The ester acid chlorides of 1,3-dienethionephosphonic acids have higher thermal stability than the phosphoryl analogs because of the weaker basic properties of the P:S group and lower electrophilic strength of the phosphorus atom. Comparative analysis of the PMR spectra of the derivatives of 2-methylbutaduene-1,3-phosphonic and thionephosphonic acids showed that these compounds represent mixtures of various quantities of cis- and trans- isomers. The latter are stabilized by an intramolecular hydrogen bond with the chlorine atoms of the $PSCl_2$ group. P:S participates to a considerably lesser degree in formation of hydrogen bonding than the P:O group.

1/1

1,3-diene groups in the side chains. Klasnivakova, L. N.; Okhrimenko, I. S. (Leningrad. Tekhnol. Inst. Im. Lensoveta, Leningrad, USSR). *Zh. Prikl. Khim. (Leningrad)* 1970, 43(1), 107-12 (Russ). [—PO(CH:CR:CHR')(OCH$_2$CH$_2$)$_2$ O—]$_n$ (I), where R = R' = H, R = Me and R' = H, or R = H and R' = Me, and n is 2–4, were prepd. by polycondensation of (R'HC:CR:CH)POCl$_2$ with diethylene glycol. I were viscous, transparent liqs., sol. in alcs., chloro hydrocarbons, and $PhNO_2$, and insol. in Et_2O and hydrocarbons. I were readily gelatinized, even under N at room temp., and had Br nos. that were 50–70% of the theoretical, apparently due to the difficulty in brominating conjugated double bonds attached to P. I were hardened by heating in the presence of cumene hydroperoxide or Bz_2O_2–$PhNMe_2$ to give rigid, transparent films with good adhesion to glass and metal and high abrasion resistance. Hardened I (R = R' = H) does not burn after removal from a flame. DBJR

4

REEL/FRAME
19800572

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Acc. Nr. AP0055698 Abstracting Service: CHEMICAL ABST. 6-72 Ref. Code UR0420

112164z **Copolymerization of oligo esters of 1,3-diene-phosphonic acids with unsaturated alkyd resins.** Zagudaeva, T. A.; Printseva, Z. V.; Mashlyakovskii, L. N.; Okhrimenko, I. S. (Leningrad. Tekhnol. Inst. im. Lensoveta, Leningrad, USSR). *Vysokomol. Soedin., Ser. B* 1970, 12(1), 50-2 (Russ). Resin I-35 (I) (glycerol pathalate modified with dehydrated castor oil) was copolymd. with a diethylene glycol oligoester (II) of 2-methyl-1,3-butadiene-1-phosphonic acid in the presence of cumene hydroperoxide at 120°. Addn. of 0.5% 1,4-$C_6H_4(OH)_2$ (III) reduced the crosslinking rate. The copolymn. rate of I with II was inversely proportional to II concn., presumably due to the high reactivity of II, which overshadowed the effect of III. The copolymn. gave flame resistant, flexible, crosslinked polymers and films. CJR

Y1

CB 7

REEL/FRAME
19841007

USSR UDC: 681.325.6

BLYUMIN, S. L., IGNATENKO, A. D., MASHLYKIN, V. G., and CHERNIKHOV, Yu. V.

"Method of Analyzing a Typical Logic Element Using Thyristors"

Moscow, Avtomatika i telemekhanika, No 4, 1972, pp 162-167

Abstract: Although circuits consisting of thyristors for use in logic systems can be investigated graphically, such an analysis requires a good many diagrams. The authors of this article propose a method for analytically investigating stable modes of operation of such thyristor circuits. Using the example of a NOT circuit involving two thyristors, the authors show how the method is used. The example of two NOT circuits connected in series is also treated. This latter example is used to show how the right moment for applying the control pulse as well as the zone of insensitivity to noise can be determined. Thus, the method explained in this article can be used to estimate the time characteristics that must be taken into account for designing stable circuitry.

1/1

USSR

UDC 577.472.614+577.391

GUS'KOVA, V. N., BRAGINA, A. N., ZASEDATELEV, A. A., IL'IN, B. N., KUPRIYANOVA, V. M., MASHNEVA, N. I., RODIONOVA, L. F., SUKAL'SKAYA, S. Ya., and TIKHONOVA, A. I., Leningrad Scientific Research Institute of Radiation Hygiene, Ministry of Health RSFSR

"Effect of a Mixture of Uranium Fission Products on Sanitary Conditions and Hydrobionts in Weakly Mineralized Bodies of Fresh Water"

Kiev, Gidrobiologicheskiy Zhurnal, Vol 6, No 4, Jul/Aug 70, pp 5-11

Abstract: Pollution of water with two mixtures of radionuclides (mixture I, 52% rare earth radioisotopes and 20% alkali earth elements; mixture II, 40% rare earth radioisotopes and approximately 34% zirconium 95 and niobium 95) at concentrations ranging from $2.0 \cdot 10^{-7}$ to $1.0 \cdot 10^{-5}$ curie/liter was studied. The substances did not affect the sanitary conditions or the hydrobionts studied (E. coli, protococcal algae, Infusoria, duckweed). Biochemical oxygen demand and development of saprophytic mycoflora were inhibited only at concentrations above $1.0 \cdot 10^{-3}$ curie/liter. The rate of accumulation decreased from the lowest link (microorganisms) to the highest (fish). Adverse effects of the radioisotopes on developing fish spawn varied with the stage of

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USSR

GUS'KOVA, V. N., et al, Gidrobiologicheskiy Zhurnal, Vol 6, No 4, Jul/Aug 70, pp 5-11

development. Effects were evident in the early stages of embryogenesis at a concentration of $1 \cdot 10^{-5}$ curie/liter and in later stages at $1.0 \cdot 10^{-3}$ curie/liter.

2/2

Converters

USSR

UDC 621.385.6

ZHELEZOVSKIY, B.YE., MASHNIKOV, V.V., BESSONOV, V.I.

"To A Theory Of An Electron-Beam Frequency Converter"

V sb. Vopr.elektron.tekhn. (Problems Of Electronic Technology--Collection Of Works), Issue 2, Saratov, Saratov University, 1971, pp 52-58 (from RZh--Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3A83)

Translation: The harmonics are theoretically studied of the current in an electron stream modulated beforehand in a klystron-type gap by signals of two frequencies. The problem is considered in a kinematic approximation. An expression is obtained for the combination components of a bunched current. The conclusion is reached that within wide limits an electron-beam converter can assure satisfactorily simple retuning with respect to frequency. The proposed method of analyzing the harmonics of a current can be useful to a consideration of the nonlinear processes in other electron-beam microwave devices. 4 ref. R.M.

1/1

USSR UDC 621.385.6

MASHNIKOV, V. V., BEZMENOV, B. A., ZHELEZOVSKIY, B. YE.

"Analysis of a Two-Signal Balanced Traveling-Wave Tube Amplifier"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1042-1046

Abstract: A theoretical and experimental study was made of the conditions of simultaneous amplification of two signals of equal input amplitudes and different frequencies in an O-type traveling wave tube. The predominant amplification of one of the signals is determined by its frequency, amplification coefficeint and the steepness of the amplitude characteristic in the signal of single-frequency mode. Depending on the operating conditions of the tube, each of the mentioned parameters can be defined. With equal steepness of the amplitude characteristic and the amplification coefficient, the higher frequency signals will receive predominant amplification. For equal amplification coefficients and small detuning, the signal with greater steepness of the amplitude characteristic will receive predominant amplification. The signal with a high amplification coefficient will receive predominant amplification for equal steepness of the amplitude characteristic and small detuning.

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USSR

UDC 621.385.6

MASHNIKOV, V. V., ZHELEZOVSKIY, B. YE., PETROVA, V. N.

"Study of Complete Suppression of one of the Signals in the Two-Frequency Operating Mode of Traveling Wave Tubes"

Kiev, Izvestiya vysshikh uchebnykh zavedeniy--Radiotekhnika, Vol XIV, No 9, 1971, pp 1027-1031

Abstract: A study is made of some results of the theoretical and experimental investigations of the Kompfner effect in traveling wave tubes operating in the two-frequency mode. Inasmuch as the output signal in this case has a complex spectrum, the complete suppression of one of the signals is taken as absence of the component with the frequency of the investigated signal at the traveling wave tube output. Analytical methods of analyzing multifrequency operating modes of O-type devices are developed, and the physical processes in them are analyzed in depth. Graphs are presented for the relative drift angle as a function of the parameter X_1 proportional to the amplitude of the input signal, the magnitude of the suppression current as a function of the parameter X_1, the voltage of the total damping of the first signal as a function of the input power of the second signal, and the experimental function for the output power

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USSR

MASHNIKOV, V. V., et al., Izvestiya vysshikh uchebnykh zavedeniy--Radiotekhnika, Vol XIV, No 9, 1971, pp 1027-1031

of the first signal as a function of the input power of the second signal. With an increase in power (amplitude) of the second signal the voltage at which complete damping of the first signal takes place changes. The output power (amplitude) from cutoff of the signal depends on the input power of the second signal. The mechanisms behind these phenomena are discussed.

2/2

USSR UDC: 666.764.4:621.7.029

MASHNITSKIY, A. A., ANDREYEVA, T. V. and DUBOVIK, T. V., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"High-Temperature Protective Coatings on Graphite"

Moscow, Ogneupory, No 11, 1971, pp 41-44

Abstract: Discussed in this study are conditions for producing high-temperature protective boron-nitride coatings on graphite parts with a view to increase their corrosion resistance. The process of making technical-grade boron nitride is detailed. Cited are various boron nitride-base compositions, including their x-ray diffraction, chemical and metallographic analyses as well as resistivities. The technology of applying boron nitride coatings by the method of nitriding graphite parts in a mixture comprising 80% H_3BO_3, 15% BN and 5% carbon black in a tubular graphite resistance furnace with 90-mm (diam.) heaters and a mixture of 50% H_3BO_3 and 50% BN in a furnace with a 150-mm diam. heater is described. The mechanism of formation of coatings is discussed. Service tests indicate the potential uses of graphite with boron nitride coatings in the fusion of semiconductor materials, including silicon, germanium and alloys of both. (2 illustrations, 1 table, 2 bibliographic references).
1/1

USSR UDC 547.246

NOVIKOVA, Z. S., MASHOSHINA, S. N., and LUTSENKO, I. F., Moscow State University imeni M. V. Lomonosov

"Reaction of Trialkylgermyl Dialkyl Phosphites With Unsaturated Compounds"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2110-2111

Abstract: Trialkylgermyl dialkyl phosphites, as well as trialkylsilyl dialkyl phosphites, react with unsaturated compounds to form O- and C-organogermanium derivatives of phosphonates. Trialkylgermyl dialkyl phosphites have been synthesized from sodium dialkyl phosphites and triallylgermylchlorides in ether in 40-50% yield. Germyl phosphites readily react with sulfur, air oxygen and phenylazide. Trialkylgermyl phosphites treated with α,β-unsaturated compounds, ketones and carboxylates yield a mixture of O- and C-germanium-substituted phosphonates. Trialkylgermyl phosphites readily combine with acrylonitrile (30 mins., 80-100°C) with a good yield of an addition product over the C-C multiple bond -- diethyl β-trialkylgermyl-β-cyanoethylphosphonate. The yield is 70%. The reaction of trialkylgermyl diethyl phosphites with an equimolar amount of ketene yields a mixture of O- and C-germanium-substituted acetylphosphates.

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1/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--MAGNETOPHONON RESONANCE IN TELLURIUM -U-

AUTHOR-(02)-BRESLER, M.S., MASHOVETS, D.V.

COUNTRY OF INFO--USSR

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 39, NR 2, PP 421-435

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETORESISTANCE, TELLURIUM, SINGLE CRYSTAL, LIQUID NITROGEN, PHONON, ENERGY SPECTRUM, DIPOLE MOMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1234 STEP NO--GE/0030/70/039/002/0421/0435

CIRC ACCESSION NO--AP0124888

UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0124888
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN INVESTIGATION WAS MADE OF THE MAGNETORESISTANCE OF TELLURIUM SINGLE CRYSTAL SAMPLES IN MAGNETIF FIELDS UP TO 400 KOE AT LIQUID NITROGEN TEMPERATURES FOR DIFFERENT RELATIVE ORIENTATIONS OF MAGNETIC FIELD, SAMPLE CURRENT, AND CRYSTAL THREEFOLD AXIS. FOR THE INTERPRETATION OF THE OBSERVED MAGNETOPHONON RESONANCE OSCILLATIONS THE SYSTEM OF LANDAU LEVELS FOR THE TELLURIUM VALENCE BAND IS CALCULATED IN THE QUASI CLASSICAL APPROXIMATION TAKING INTO ACCOUNT THE PHENOMENA RELATED TO THE PRESENCE OF A SADDLE POINT IN THE BAND ENERGY SPECTRUM (INTRABAND MAGNETIC BREAKDOWN). THE LONG WAVELENGTH OPTICAL VIBRATIONS IN THE TELLURIUM LATTICE ARE DISCUSSED. IT IS SUGGESTED THAT FROM THREE OPTICAL PHONON MODES INDUCING THE FIRST ORDER DIPOLE MOMENTS ONE MODE PREDOMINATES IN CARRIER SCATTERING. THE CALCULATED POSITIONS OF THE MAGNETOPHONON OSCILLATIONS ARE IN GOOD AGREEMENT WITH EXPERIMENT. FACILITY: INSTITUTE OF SEMICONDUCTORS, ACADEMY OF SCIENCES OF THE USSR.

UNCLASSIFIED

USSR

UDC: 621.315.592

VITOVSKIY, N. A., VIKHLIY, G. A., and MASHOVETS, T. V.

"Radiation-Stimulated Complex Formations in p-Type Indium Antimonide"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1995-2002

Abstract: Earlier papers have noted changes in the parameters of indium antimonide under x-rays or light at 78° K that remained for quite a long time after irradiation had ceased. The purpose of the present paper and the experimental work it describes is to investigate further the mechanism of this process and to clarify the nature of the defects formed by the irradiation. The experimental conditions were chosen such that the change in parameters of the specimens and the process of surface overcharging are practically eliminated. The experiments show that the volume effect does not increase the hole concentration, and that the irradiation results in very radical changes in the concentration of the impurities, in the mobility, and other factors. It is also found that clarification of the observed phenomena is possible without resorting to concepts of shockless generation of internodal atoms and vacancies.

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USSR

UDC: 621.315.592

VITOVSKIY, N. A., et al, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1995-2002

The authors thank B. I. Shklovskiy for participating in a discussion of the work.

2/2

USSR

UDC 537.311.33:546.682'86

VITOVSKIY, N.A., VIKHLIY, G.A., GALAVANOV, V.V., MASHOVETS, T.V., KHANSEVAROV, R.YU.

"Radiation Defects In Indium Antimonide"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 124-130 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B41)

Translation: It is shown that defects originating in InSb during irradiation of it by electrons and γ rays are also formed in p-type InSb and under the effect of soft radiation -- x-rays with maximum energies to 55 kev and visible light. It is obvious that the process of formation of these defects is connected with the effect of some nonimpact mechanism of radiation defect formation. 6 ill. 12 ref. Summary.

1/1

USSR UDC 551.463:352.13/.14:537.311

MASHOVETS, V. P., PUSHKOV, L. V., SMAYEV, V. N., FEDOROV, M. K., and FEDOTOV, N. V.

"Density, Viscosity and Electroconductivity of Sea Water at Temperatures Up to 300-350°"

Leningrad, Zhurnal Prikoladnoy Khimii, Vol 46, No 8, Aug 73, pp 1865-1868

Abstract: Investigation of density, viscosity and electroconductivity of sea water at various temperatures $d = d_0 + 0.0105\ c^{1/2}$, where d_0 = density of pure water at a given temperature and c = salinity of sea water (weight-%). The logarithm of the viscosity of sea water ($\lg n_{sw}$) is related to the logarithm of the viscosity of pure water ($\lg n_{H2O}$) by $\lg n_{sw} = 0.913 \lg n_{H2O} - 0.00597$. The electronegativity increases with temperature reaching a maximum at 250°. The curve in the temperature range 10-160° can be described by the equation $x = 0.027 + 10^{-3} t$, where x = conductivity, t = temperature.

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1/2 034 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--EFFECT OF THE NATURE OF THE GAS ON THE ANODE EFFECT IN A SODIUM CHLORIDE MELT -U-

AUTHOR-(02)-MASHOVETS, V.P., ALEKSANDROV, YU.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 811-15

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--ARGON, HYDROGEN, CHLORINE, SPECTROGRAPHIC ANALYSIS, SODIUM CHLORIDE, GRAPHITE, ELECTROLYSIS, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0080/70/043/004/0811/0815

PROXY REEL/FRAME--3004/0764

CIRC ACCESSION NO--AP0131549

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--11DEC70

2/2 034

CIRC ACCESSION NO--AP0131549

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF AR, H, OR CL GAS ON THE ANODIC POLARIZATION OF SPECTROGRAPHIC GRAPHITE WERE MEASURED IN MOLTEN NACL TO DET. THE MECHANISM OF THE "ANODE EFFECT". THIS EFFECT WAS DUE TO THE FORMATION OF NONCONDUCTING ANODE FILM WITH COMPN. C SUBX CL SUBY WITH POOR WETTABILITY. THIS FILM GREW BY REACTION OF THE GRAPHITE WITH CL GAS. THE FORMATION OF A GAS POCKET AROUND THE ANODE DURING ELECTROLYSIS WAS A CONSEQUENCE OF THE FORMATION OF THIS ANODE FILM.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ROLE OF MULTISTAGE EXCITATION OF OPERATING LEVELS IN AN ARGON LASER -U-

AUTHOR-(03)-LEBEDEVA, V.V., MASHTAKOV, O.M., ODINTSOV, A.I.

COUNTRY OF INFO--USSR

SOURCE--OPTIKA I SPEKTROSKOPIIA, VOL. 28, FEB. 1970, P. 350-352

DATE PUBLISHED----FEB70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ARGON LASER, ELECTRON GAS, CURRENT DENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1480 STEP NO--UR/0051/70/028/000/0350/0352

CIRC ACCESSION NO--AP0112474

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

2/2 030

CIRC ACCESSION NO--AP0112474

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL INVESTIGATION OF AIMED AT MEASURING THE POPULATION OF THE UPPER LEVELS OF AN ARGON LASER AS A FUNCTION OF THE CURRENT STRENGTH AT A CONSTANT ATOM DENSITY IN THE CAPILLARY (ACHIEVED BY INCREASING THE PRESSURE IN PROPORTION TO THE INCREASE IN CURRENT DENSITY). UNDER THESE CONDITIONS, THE ELECTRON TEMPERATURE REMAINED CONSTANT. THE PRESSURE WAS DETERMINED AS THE SUM OF THE PARTIAL PRESSURES OF THE ATOMIC AND ELECTRON GASES. ELECTRON TEMPERATURE AND CONCENTRATION WERE CALCULATED FROM FORMULAS PROPOSED BY HERZIGER AND SEELIG (1963). CURVES RELATING THE PRESSURE AND CURRENT DENSITY IN THE CAPILLARY ARE PLOTTED, TOGETHER WITH CURVES SHOWING THE POPULATIONS OF THE LEVELS AS A FUNCTION OF THE CURRENT DENSITY.

UNCLASSIFIED

USSR

UDC 639.954

MASHTAKOV, S. M., (DECEASED), DEYEVA, V. P., VOLYNETS, A. P., PROKHORCHIK, N. A., SHCHERBAKOV, V. A., and KUDRYAVTSEV, G. P., Fiziologicheskoye Deystviye Nekotorykh Gerbitsidov ns Rasteniya (The Physiological Effect of Certain Herbicides on Plants), Minsk, "Nauka i Tekhnika," 1971, 252 pp

Translation: Annotation: The book presents results from research on the effect of certain herbicides, gibberallic acid, and chlorchlorinechloride (?) on the biochemical activity of mitochondria and chloroplasts and the exchange of phenol compounds of plants. The physiological activity of a number of free and linked polyphenols is described. The relationship between the effect of herbicides on plants and the content of native phenol compounds and the level of energy potential of the plants being tested is discussed.

The book is intended for scientific associates, graduate students, teachers, and students at universities and agricultural and podagogical higher educational institutions.

Table of Contents:

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USSR

PASHTAKOV, S. M. (DECEASED), et al., Fiziologicheskoye Deystviye Nekotorykh Gerbitsidov na Rasteniya, Minsk, "Nauka i Tekhnika," 1971, 252 pp

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USSR

MASHTAKOV, S. M., (DECEASED), et al., Fiziologicheskoye Deystviye Nekotorykh Gerbitsidov na Rasteniya, Minsk, "Nauka i "Tekhnika," 1971, 252 pp

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USSR

MASHTAKOV, S. M., (DECEASED), et al., Fiziologicheskiye Deystviye Nekotorykh Gerbitsidov na Rasteniya, Minsk i Tekhnika," 1971, 252 pp

4/5

USSR

MASHTAKOV, S. M., (DECEASED), et al., Fiziologicheskiye Deystviye Nekotorykh Gerbitsidov na Rasteniya, Minsk 1 Tekhnika," 1971, 252 pp

5/5

USSR

UDC: 533.9.03

BELAN, N. V., KIRYUSHKO, V. I., [redacted]

"Experimental Study of the Distribution of Current in a Coaxial Accelerator"

Samoletostr. i tekhn. vozd. flota. Resp. mezhved. nauchno-tekhn. sb. (Aircraft Construction and Air Force Technology. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 19, pp 26-32 (from RZh-Aviatsionnyye i raketnyye dvigateli, No 10, Oct 70, Abstract No 10.34.163)

Translation: The authors present the results of an experimental study using a differential magnetic probe to determine distribution of current with respect to length in the accelerating electrodes of a coaxial injector. It is shown that the current is continuously distributed with respect to the length of the accelerating electrodes, with a part of the current flowing on the surface of the insulator throughout the entire discharge. The results of localized current measurements by differential magnetic probe inside the accelerator are compared with integral measurements of the current in an accelerating circuit by using a Rogowski loop. Five illustrations, bibliography of seven titles. Resumé.

1/1

USSR UDC 627.81:551.324.4(47+57)

MASHUKOV, P. M.

"Study of Winter Conditions of the Chardarinskiy Hydroelectric Power Plant and Purpose of Optimal Flashes. 1967"

Izuch. i ispol'z vodn. resursov SSSR, 1966-1967 -- V sb (Study and Use of USSR Water Resources, 1966-1967 -- Collection of Works), Moscow, Nauka Press, 1970, pp 73-74 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D33)

Translation: This article contains a study of the river water level, movement of the ice edge, natural channel regulation of runoff connected with movement of the ice edge, flood movement, flood conditions and other extraordinary phenomena, accuracy of observations of water level and flow rate, and the elements of the river water balance. A method is presented for probability calculation of the time of encounter of the flood with the ice edge and the method of calculating the passage creating zero flow rates in Kazalinsk.

1/1

USSR

UDC 621.375.145:621.382.8

GOLOVATSKIY, V.A., KONEV, YU.I., MASHUKOV, YE.V.

"Power Semiconductor Integrated Circuits"

V sb. Elektronnaya tekhnika v avtomatike (Electronics Techniques In Automation--Collection Of Works), Moscow, Izd-vo "Sovetskoye Radio," No 2, 1971, pp 131-132

Abstract: Brief data are presented concerned with the development of power semiconductor integrated circuits with an output power up to 2000 watt. An exterior view is shown of the integrated construction of a bridge transistorized switching device which contains 8 KT805A and 12KT803A n-p-n transistors mounted on a 60 x 70 x 8 mm metal plate. 1 fig. 4 ref.

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USSR UDC 669.243 + 669.337:669.052

MASH'YANOV, M. P., KOLESNIKOV, B. I., LAPIN, Yu. D., MECHEV, V. V., RYABOV, V. G., VASIL'YEV, M. G., and SHUSTITSKIY, V. D.

"Certain Problems of the Production of Copper and Nickel From Complex Crude Sulfides"

Moscow, Tsvetnyye Metally, No 10, Oct 70, pp 11-14

Abstract: Difficulties encountered in the production of copper and nickel from sulfide copper-nickel ores are discussed. Procedures used in the USSR for separating these metals as well as cobalt are evaluated, and the necessity for the reconstruction of present copper-nickel production combines is stressed. A plan is recommended which would involve the parallel production of copper and nickel with an exchange of semi-products between them. A schematic production chart and a table containing the compositions of basic materials used in processing sulfide copper-nickel ores are presented. The recommended plan would ensure the recovery of 98-99% Cu, 96-97% Ni, and 85-87% Co, and would increase the recovery of noble metals and platinum. The plan involves a substantial increase in the use of oxygen, not only for melting but also for converting ores and concentrates. The plan would also make it possible to utilize more complete-

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MASH'YANOV, N. P., et al, Tsvetnyye Metally, No 10, Oct 70, pp 11-14

ly the crude sulfides, and to obtain pig-iron and construction materials from the high-ferrous converter mattes.

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USSR UDC 547.484.34

KURTS, A. L., MASIAS, A., BELETSKAYA, I. P., and REUTOV, O. A.,

"Reactivity of Ambident Anions. Selective Solvation of Acetoacetic Ester Anion in Alkylation Reactions"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 11, Nov 71, pp 2233-2236

Abstract: Kinetics of the O-alkylation and C-alkylation of potassium enolate of the acetoacetic ester with ethyltosylate in a binary mixture hexamethylphosphotriamide-ethanol was studied. It was established that the reaction rate of both of these reactions increases with increasing quantity of the dipolar aprotonic solvent in the mixture. It has been shown that when a change is made from alcohol to hexamethylphosphotriamide [hexametapol], the O-alkylation rate is increased 400-fold, while the C-alkylation is increased only about 25-fold. This is due to the selective solvation of the oxygen center of the anion with the proton containing solvent. Substituting deuteroethanol for ethanol is reflected only in overall reaction rate, the ratio of isomers remaining unchanged.

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Plant Pathology

UDC 632.4:582.285.22:633.11

USSR

MASIN, V. V., and ANDREYEV, L. N., Chief Botanical Garden, Academy of Sciences USSR, Moscow

"Vegetative in vitro Growth of the Pathogen of Stem Rust of Wheat"

Leningrad, Mikologiya i Fitopatologiya, Vol 5, No 2, 1971, pp 197-200

Abstract: Spring wheat susceptible to infection Puccinia graminis Pers. f. sp. tritici (race 21) was used in this work. The wheat seeds were treated with a weak $KMnO_4$ solution and placed into sterilized soil. The plants were grown under artificial daylight for 16 hours, at 14-17°C and a relative humidity of 80-90%. Plants 7-10 days old were infected with P. graminis f. sp. tritici. Formation of uredopustules was observed after 10-12 days. The first signs of the disease (6-8 days after infection of the plants) were infected leaves; they were removed, sterilized and transfered to nutrient medium under aseptic conditions. Vitamins, phytohormones, and other physiologically active compounds were added to the nutrient medium. After 5-7 days uredospores formed and light orange cushions of uredopustules appeared. The latter did not differ from those grown under ordinary conditions. Thus, it is possible to grow isolated sections of wheat leaves and P. graminis f. sp. tritici (race 21) can exhibit vegetative growth under saprophytic nutrient conditions. 1/1

USSR UDC: 621.397.62

ZDANYS, J., MASIULIS, F., BARTKEVIČIUS, S.

"Stabilized Power Supply for the YHT-59 Television Set"

V sb. Elektrotekhnika (Electrical Engineering--collection of works), Kaunas, 1970, pp 181-182 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12G179)

Translation: The article is devoted to calculating the basic parameters of a ferroresonance voltage stabilizer under the condition that the load power is constant. Theoretical and experimental data are given for a stabilizer built in accordance with the given recommendations. Resumé.

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USSR UDC: 537.312.62

BOTOSHAN, N. I., GABARADZHIU, V. F., and [redacted] V. A.

"Investigating the Densities of the States of a Two-Zone Superconductor With a Nonmagnetic Impurity"

Kishinev, V sb. Issled. po kvant. teorii sistem mnogikh chastits (Investigating Systems of Many Particles by the Quantum Theory) 1971, pp 18-26 (from RZh--Radiotekhnika, No 4, 1972, Abstract No 4D485)

Translation: Calculations are made of the densities of the electronic states of a two-zone superconductor with a nonmagnetic impurity in the entire frequency interval in the two limiting case of small and large impurity concentrations. The frequency Ω_n, at which the densities of the electronic states of the zone electrons have a maximum, as well as the values of these maxima, is determined. Two illustrations, bibliography of five. Resume

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USSR

UDC: 620.179.16

BUDENKOV, G. A., and MASKAYEV, A. F., Chelyabinsk Polytechnic Institute imeni Leninskiy Komsomol

"Mechanism of Excitation and Registration of Ultrasonic Waves in Iron and in an Iron-Nickel Alloy in the Curie Temperature Range"

Sverdlovsk, Defektoskopiya, No 1, 1973, pp 109-115

Abstract: The authors study the effect of temperature on the excitation and registration of ultrasonic waves in an invar iron-nickel alloy (36 percent Ni) and in iron (0.025 percent C) in order to investigate the possibilities of realizing ultrasonic control. The results show that excitation and registration of longitudinal ultrasonic waves are possible by the electromagneto-acoustic method in materials with large volume magnetostriction and magnetoelastic effect by means of the para-process at temperature falling within the Curie range. Both in invar and in iron, excitation and registration of ultrasound is accomplished due to the volume magnetostriction and the magnetoelastic effect in the para-process zone. The described effects can also be used for the ultrasonic, high temperature, contactless method of controlling materials with large volume magnetostriction. Original article has: six figures and eight bibliographic entries.

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USSR UDC 547.295.94:665.4

MASKAYEV, A. K., MAN'KOVSKAYA, N. K., LEND'YEL, I. V., FEDOROVSKIY, V. T., SIMUROVA, Ye. I., and TERENT'YEVA, V. N., VNIIPKneftekhim [All-Union Scientific Research, Planning and Design Institute of Petrochemical Processes]

"Production of 12-Hydroxystearic Acid -- Raw Material for Plastic Lubricants"

Moscow, Khimiya i Tekhnologiya Topliv i Masel, No 2, 1971, pp 21-24

Abstract: It has been established that commerical grades of Soviet castor oil contain 4-6 percent fewer glycerides of ricinoleic acid than foreign specimens. Therefore, the production of a high yield of 12-hydroxystearic acid (12-HSA) requires that the hydrogenation process take place under conditions which assure the maximum conversion of ricinoleic acid into 12-HSA. The purpose of the article was to study the effect of castor oil hydrogenation conditions on the process rate, the composition of the hydrogenate and the selection of optimal conditions assuring hydroxy acid conservation. Experiments were conducted in an autoclave with a 5 l. load of castor oil with mechanical stirring (1500 rpm) in the presence of a powdered skeleton metallic catalyst containing 68.8 percent (by weight) nickel. The raw material used was grade I refined castor oil and commercial hydrogen with 1/2

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MASKAYEV, A. K., et al, Khimiya i Tekhnologiya Topliv i Masel, No 2, 1971, pp 21-24

a purity of 99.5 percent by volume. After the catalyst was filtered out, the iodine numbers and fatty acid composition of the samples were determined.

It was found that the conditions assuring maximum (98.5 percent) conversion of ricinoleic acid into 12-HSA are: temperature 130°C, quantity of catalyst at least 2 percent by weight, hydrogen pressure 10-15 atm. In order to conserve hydroxy acids, the castor oil hydrogenation process should not be permitted to go to an iodine number below 5. The Soviet oil and fats industry produces various grades of castor oil differing in purification efficiency. A study of the hydrogenation rate showed that the higher the purification efficiency, the higher the process rate. However, medicinal castor oil cannot be recommended because of its short supply and high cost. The isolation of fatty acids from hydrogenated castor oil presents no difficulties. Using the described technique, VNIIPKneftekhim has for the first time in the USSR organized the pilot production of 12-HSA and new types of 12-HSA-based plastic lubricants possessing high operating properties.

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1/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--CLASSIFICATION OF HYPOFERRIC ANEMIAS -U-

AUTHOR-(05)-RYABOV, S.I., RUDAKOVA, T.L., SENCHIK, R.V., MASKEYEVA, ZH.M., SHOSTKA, G.D.

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CIRC ACCESSION NO--AP0109100

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE PRESENTS THE DATA CONCERNING THE EXAMINATION OF 200 CHILDREN WITH DIFFERENT FORMS OF HYPOFERRIC ANEMIAS. ON THE BASIS OF THE INVESTIGATIONS CONDUCTED THE AUTHORS SUGGEST TO SINGLE OUT 10 FORMS OF HYPOFERRIC ANEMIA TAKING INTO CONSIDERATION THE CONDITION OF MEDULLARY HEMOPOISES AND THE RESULTS OF THE STUDY OF THE FUNCTIONAL ACTIVITY OF THE CELLS OF THE ERYTHROID SERIES. THE RESULTS OF THE MORPHOLOGICAL AND FUNCTIONAL INVESTIGATION OF THE STOMACH ARE OF GREAT HELP. FACILITY: KAFEDRA VNUTRENNIKH BOLEZNEY STOMATOLOGICHESKOGO FAKUL'TETA I LENINGRAD MEDITSINSKOGO INSTITUTA IM. I. P. PAVLEVA NA BAZE BOL'NITSY NO 2 ZHDANOVSKOGO RAYONA.

UNCLASSIFIED

USSR

UDC 621.791.856:669.15-194

CHEKATILO, I. V., MARTYN, V. M., ARTAMONOV, V. L., Institute of Electric Welding imeni Ye. O. Paton, YERMILOV, YU. F., MASKIMOV, V. T., and PCHELIN, YU. I., Biysk "Elektropech" Plant

"Welding of Heat Resistant Kh25N20S2, Kh23N18, and Kh25N13 Steels in Protective Gases"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 70, pp 50-53

Abstract: An investigation was conducted at the Institute of Electric Welding imeni Ye. O. Paton for the purpose of developing a technology for the gas-arch welding of Kh25N20S2 steel and its combinations with Kh23N18 and Kh23N13 steels in argon, CO_2, and technical nitrogen containing 3-5%O_2. The use of EP532 austenitic boride wire 1.2 and 2 mm in diameter containing 0.45-0.75 B and 2,5-3.0% Si made it possible to obtain welds without cracks. Welding techniques in different gases are described. Tables are presented which show the chemical contents of steels and wire and the transient mechanical properties of rolled EI253 steel joints welded with EP532 wire in protective gases, and figures show the microstructure of a butt weld and the microstructure of the metal deposited by EP532 wire. The results show that the strength of welds made with EP532 wire in argon, CO_2,

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CHEKATILO, I. V., et al., Avtomaticheskaya Svarka, No 8, Aug 70, pp 50-53

and nitrogen is equal to that of the basic metal and that austenization increases weld plasticity.

MASKIN, V. YA.

XIV-18. EFFECT OF THE CRYSTALLOGRAPHIC ORIENTATION ON THE CRYSTALLIZATION OF EPITAXIAL LAYERS OF SOLID SILICON-GERMANIUM SOLUTION

[Article by M. L. Lyubovich, V. Ya. Maskin, Tashkent; Konferentsiya [illegible] po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Moscow, 12-17 June 1972, p 210]

In this paper the results are presented from a study of the effects of the crystallographic orientation plane of the substrate in the various regions of crystallization of the epitaxial layers of solid solutions of silicon-germanium and different component ratios on the growth rate and also on the nature of the morphology and perfection of the growing layers.

By using the local x-ray spectral analysis, the variation of the intrusion of germanium into the layer from the gas phase was investigated depending on the crystallographic orientation, the crystallization temperature and the component ratios.

The role of the crystallographic plane in the formation of the germanium distribution profile in the solid solution layer which is determined using the scanning electron probe is evaluated.

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USSR UDC: 621.375.421

MASLAKOV, G. N., PUSHKAR', V. I., and NASTYUSHENOK, S. S.

"Some Selective Amplifier Circuits Using Field-Effect Transistors With Double-T RC Filters"

V sb. Vopr. uluchsheniya tekhn. parametrov vypryamit. i tranzist. priborov (Problems in the Improvement of Technical Parameters of Rectifiers and Transistorized Devices -- collection of works) Leningrad, 1970, pp 174-180 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D27)

Translation: Selective amplifier circuits with a double-T bridge in the negative feedback circuit are studied for use in active filters. It is shown that it is possible to make them using field-effect transistors, thus achieving wide limits of control of the amplification factor. The maximum amplification factor is approximateli 100. Bibliography of five.

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USSR UDC: 621.375.4

PUSHKAR', V. I. and MASLAKOV, G. N.

"Investigating Transistor Parameters to Indicate Possibilities of Designing Amplifier Stages With Limited Gain"

V sb. Vopr. uluchsheniya tekhn. parametrov vyprvamit. i tranzist. priborov (Problems in Improving the Technical Parameters of Rectifiers and Transistorized Devices) Leningrad, 1970, pp 42-57 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D164)

Translation: The parameters of transistors were experimentally investigated in various operation modes and various temperatures of the outside medium, for the purpose of analyzing the possible errors of the amplifiers with high gain and without the use of negative feedback for stability. Conditions are determined for which transistors, connected in a common emitter circuit, have maximum voltage gain. The latter then vary only slightly with changes in collector current, supply voltage, the temperature of the outside medium, and the frequency of the input signal. Eleven illustrations, three tables, bibliography of four. N. S.

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USSR UDC: 621.375.4

MASLAKOV, G. N. and PUSHKAR', V. I.

"Designing Amplifiers With Maximum Voltage Gain Using Field-Effect Transistors"

V sb. Vopr. uluchsheniya tekhn. parametrov vyprvamit. i tranzist. priborov (Problems of Improving the Technical Parameters of Rectifiers and Transistorized Devices--collection of works) Leningrad, 1970, pp 273-279 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D163)

Translation: Some methods are considered for designing field-effect transistor amplifiers with maximum gain. Some practical circuits with stabilization of amplifier stage modes by using a common negative feedback circuit for d-c are given. Parameters of several field-effect transistors are presented. Five illustrations, one table, bibliography of three. N. S.

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cyanide and hydrolyzed ethylsilicate. The cyaniding was performed by h-f current heating at 1000°C for 3 minutes. After cyaniding, hardening, and low tempering, the coating structure was found to consist of martensite, residual austenite, and sometimes a troostite grid along the grain boundaries. The cyanided specimens had a hardness of HV750. A laminar x-ray diffraction analysis shows 40% of residual austenite in the peripheral zones. No decarburization of the surface was observed. The compressive stresses at a 0.015-mm depth were

USSR UDC 539.4.014.1:669-155.2:669.127.3

MASLAKOVA, L. P., Moscow Automobile and Road Institute

"Residual Stresses in Cyanided Electrolytic Iron"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 12, 1970, pp 44-45

Abstract: This study deals with the effect of paste cyaniding with induction heating on the formation of residual stresses in an electrolytic iron casting. The stresses were measured on three specimen series: 45 steel with a soft layer of electrolytic 0.15-mm iron, cyanided 45 steel, and 45 steel with a cyanided electrolytic coating. The paste consisted of potassium ferro-

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MASLAKOVA, L. P., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 12, 1970, pp 44-45

somewhat increased. In the cyanided electrolytic coating the residual stress curve was more complex. At the coating-parent metal interface the compressive stresses became tensile stresses. It is concluded that paste cyaniding markedly improves the residual stress curve in the coating. Residual austenite minimizes the beneficial compressive stresses on the surface.

Steels

USSR UDC 669.1:620.193.91

BOGACHEV, I. N., ZVIGINTSEV, N. V., and MASLAKOVA, T. M., Ural Polytechnic Institute imeni S. M. Kirov

"Effect of Alloying on the Aging Process and Strengthening of Steel with 20% Nickel"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 2, Feb 72, pp 362-368

Abstract: The effect of alloying elements on the processes of aging and strengthening was studied according to the change in hardness and a number of physical properties; thermal emf and electrical resistance. The alloys studied were : N20, N20M2, N20M5, N20K10, N20K15, N20K10M5, N20K10M5TYu, N20TYu, and N20M3TYu. An aging temperature between 400 and 550° C produced the highest hardnesses and it was found that Fe-Ni steels N20K10M5, N20TYu, N20M3TYu, and N20K10M5TYu were much harder than steels N20, N20M2, N20K10, N20K15 and N20M5, which is explained for the most part by their content of titanium and aluminum. On the other hand the harder steels had a lower thermal emf. It was concluded that the processes of aging and strengthening of precipitation hardened Fe-Ni steels was dependent on the content of Mo, Ti, Al, and Co although the effect of these elements differed for the indicated processes. Anomalies in the temperature relationship of the physical properties, dependent on Co and Mo, are weakened by Ti and Al. Four figures, 1 table, 14 bibliographic references.
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USSR UDC 669.15.018.295

BOGACHEV, I. N., POTEKHIN, B. A., MASLAKOVA, T. M.

"Plasticity of Cast Martensite-Aging Cavitation-Resistant Stainless Steels"

Povysh. konstruktivn. prochnosti staley i splavov. No 2 -- V sb. (Improving the Structural Strength of Steels and Alloys. No 2 -- collection of works), Moscow, 1970, pp 54-57 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I626)

Translation: The mechanical properties and cavitation resistance of steel with 12-13% Cr, 7-9.6% Ni, 0.02-0.05% C, Al, Ti, and Mo and also the presence of chemical inhomogeneities of the ingot were investigated. The results of the experiment permitted recommendation of these steels for use in shipbuilding, home construction, and hydraulic turbine construction.

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USSR

UDC 669.21/23

MASLENITSKIY, I. N., and CHUGAYEV, L. V.

Metallurgiya Blagorodnykh Metallov (Metallurgy of Noble Metals), Moscow, Izdatel'stvo Metallurgiya, 1972, 368 pp

Translation of Annotation: Fundamental aspects of the theory and practical metallurgy of noble metals are presented. Considerable attention is given to physicochemical processes for the extraction of gold and silver from raw ores. Thermodynamics and kinetics of cyanidation, precipitation, and processes for refining gold and silver are considered. Main directions in the treatment of auriferous ores using ion-exchange resins are presented. The most widely used and promising methods for extracting gold from unyielding ores and concentrates are given. The last chapter is devoted to methods of extracting and refining platinum group metals. The book is intended to be used as a textbook by students at higher educational institutions specializing in metallurgy. It can also be useful to aspirants and scientific research workers.

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MASLENITSKIY, I. N., and CHUGAYEV, L. V., Metallurgiya Blagorodnykh Metallov, Izdatel'stvo Metallurgiya, 1972, 368 pp

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MASLENITSKIY, I. N., and CHUGAYEV, L. V., Metallurgiya Blagorodnykh Metallov, Izdatel'stvo Metallurgiya, 1972, 368 pp

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MASLENITSKIY, I. N., and CHUGAYEV, L. V., Metallurgiya Blagorodnykh Metallov, Izdatel'stvo Metallurgiya, 1972, 368 pp

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MASLENITSKIY, I. N., and CHUGAYEV, L. V., Metallurgiya Blagorodnykh Metallov, Izdatel'stvo Metallurgiya, 1972, 368 pp

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USSR

MASLENITSKIY, I. N., and CHUGAYEV, L. V., Metallurgiya Blagorodnykh Metallov, Izdatel'stvo Metallurgiya, 1972, 368 pp

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MASLENITSKIY, I. N., and CHUGAYEV, L. V., Metallurgiya Blagorodnykh Metallov, Izdatel'stvo Metallurgiya, 1972, 368 pp

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Mechanical Properties

UDC: 669.15-196.55

USSR

SAVEL'YEVA, T. S., MASLENKOV, S. B., STEPANOV, V. P., and TAL'YANTSEV, V. S., Central Scientific Research Institute of Ferrous Metallurgy, "Elektrostal'" Plant

"Effect of Small Additives on the Anisotropy of the Plasticity in EP637 Steel"

Moscow, Stal', No 5, 1973, pp 448-449

Abstract: This article gives the results of investigations made by the authors into the effect of small quantities of carbon, boron, zirconium, and silicon on the anisotropy of the mechanical characteristics of EP637 (N18K9M5T) steel. The tests were made under industrial conditions in a vacuum induction oven with a capacity of 1.3 tons. The amounts of each additive element were, in percentage, C, 0.01-0.042; Si, 0.04-0.22; B, 0-0.006, and Zr, 0-0.09. Details of the experimental method are given. The mechanical characteristics of the metal were determined for longitudinal and transverse cuts of the ingots. A table is given of the chemical composition of the ingots, and curves are given of the effects of the various additives on the plasticity of the steel. It was found that more than 0.014% C sharply reduces the plasticity in transversely cut samples, and that zirconium increases the plasticity

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SAVEL'YEVA, T. S., et al., Stal', No 5, 1973, pp 448-449

index of the EP637 specimens. Silicon has little effect on longitudinal cuts but reduces the plasticity in transverse sections. It is recommended that boron content be kept to a minimum.

USSR UDC 669.14.018.44'6

NAZAROV, YE. G. and MASLENKOV, S. B., Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin (TsNIIChERMET)

"Tin as an Alloy Component in High-Temperature Alloys"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1972, pp 33-36

Abstract: Widely used high-temperature materials include nickel-base alloys strengthened with Ni_3Ti; Ni_3Al; $Ni_3(Al, Ti)$; Ni_3Nb-type intermetallide phases. Nickel also is said to form intermetallide γ'-phase-like compounds with silicon, tin, beryllium, and others. This study concerns the effect of tin on the properties and structure of the nickel-chrome alloy KhN78T (EI435) alloy. The experimental heats contained 0.02-0.17% Si, 0.002-0.005% S, and up to 0.01% B. It is shown that alloying Ni-Cr alloys with up to 7% Sn increases their resistance to plastic deformation, the strength properties at room and higher temperatures, as well as the rupture strength at 700°C; in this case the scale resistance of Kh20N80 remains unaffected at 1000°C. Alloying Ni-Cr alloys with tin has a strengthening effect as a

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NAZAROV, YE. G., et al, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1972, pp 33-36

result of precipitation hardening by the separation of the intermetallide phase Ni_3Sn. In alloys of this type the process of precipitation hardening proceeds at a very slow rate. (3 illustrations, 3 tables, 4 bibliographic references).

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